

Christopher N. Anderson, Publication List

Journals

1. Naulleau, P. , Anderson, C. , Bhattacharai, S. , Neureuther, A. "EUV extendibility: challenges facing EUV at 1x and beyond," *J. Photopolym. Sci. Technol.* 26, (2014)
2. P. Naulleau, C. Anderson, E. Anderson, N. Andeson, W. Chao, C. Choi, K. Goldberg, E. Gullikson, S. Kim, D. Lee, R. Miyakawa, J. Park, S. Rekawa, and F. Salmassi, "Electro-optical system for scanning microscopy of extreme ultraviolet masks with a high harmonic generation source," *Opt. Express* 22, 20144-20154 (2014).
3. Miyakawa, R., Anderson, C., Naulleau, P. "In-situ testing of high resolution optical systems via localized wavefront curvature sensing," *Imaging and Applied Optics Technical Digest OTu2D*, (2012)
4. P. Naulleau, C. Anderson, S. George "EUV resists: Illuminating the challenges," *J. Photopolym. Sci. Technol.* 24, (2011)
5. P. Naulleau, C. N. Anderson, L. Baclea-an, P. Denham, S. George, K. Goldberg, M. Goldstein, B. Hoef, G. Jones, C. Koh, B. La Fontaine, W. Montogomery, T. Wallow "Pushing EUV Lithography Development Beyond 22-Nm Half Pitch," *JVST B* 27, (2009)
6. C. Anderson and P. Naulleau, "Do not always blame the photons: Relationships between deprotection blur, line-edge roughness, and shot noise in extreme ultraviolet photoresists," *JVSTB* 27(2) Mar/Apr 2009
7. C. Anderson and P. Naulleau, "Deprotection blur in extreme ultraviolet photoresists: Influence of base loading and post-exposure bake temperature , " *JVSTB* 27 (1) Jan/Feb (2009)
8. P. Naulleau, C. Anderson, J. Chu, K. Dean, P. Denham, S. George, K. Goldberg, B. Hoef, G. Jones, C. Koh, B. La Fontaine, A. Ma, W. Montgomery, D. Niakoula, J. Park, T. Wallow, S. Wurm, "Latest results from the SEMATECH Berkeley extreme ultraviolet microfield exposure tool , " *JVST B* 27 (1) Jan/Feb 2009
9. Christopher N. Anderson, Patrick P. Naulleau, Demitra Niakoula, Elsayed Hassanien, Robert Brainard, Gregg Gallatin, Kim Dean, "Influence of base and photoacid generator on deprotection blur in extreme ultraviolet photoresists and some thoughts on shot noise., " *JVSTB* 26 (6) Nov/Dec 2295-2299 (2008)
10. Christopher N. Anderson and Patrick P. Naulleau, "Tilt sensitivity of the two-grating interferometer," *Applied Optics* Vol 47, No. 9 (2008)
11. Christopher N. Anderson and Patrick P. Naulleau, "Sensitivity study of two high-throughput resolution metrics for photoresists," *Appl. Optics* Vol 47, No. 1 (2008)
12. Christopher N. Anderson, Patrick P. Naulleau, Paul Denham, Drew Kemp, and Senajith Rekawa, "Dual domain scanning illuminator for the SEMATECH Berkeley microfield exposure tool," *JVST B* 25 (6) Nov/Dec (2007)
13. P. Naulleau, C. Anderson, K. Dean, P. Denham, K. Goldberg, B. Hoef, D. Niakoula, B. La Fontaine, T. Wallow, "Advanced resist testing using the SEMATECH Berkeley extreme ultraviolet microfield exposure tool," *JVST B* 25 (6), 2132-2135

Conference Proceedings

1. Chris Anderson ; Dominic Ashworth ; Lorie Mae Baclea-An ; Suchit Bhattari ; Rikos Chao ; Rene Claus ; Paul Denham ; Ken Goldberg ; Andrew Grenville ; Gideon Jones ; Ryan Miyakawa ; Ken Murayama ; Hiroki Nakagawa ; Senajith Rekawa ; Jason Stowers ; Patrick Naulleau; The SEMATECH Berkeley MET: demonstration of 15-nm half-pitch in chemically amplified EUV resist and sensitivity of EUV resists at 6.x-nm. Proc. SPIE 8322, Extreme Ultraviolet (EUV) Lithography III, 832212 (March 29, 2012); doi:10.1117/12.917386.
2. Christopher N. Anderson ; Ryan H. Miyakawa ; Patrick P. Naulleau; Low-speckle holographic beam shaping of high-coherence EUV sources. Proc. SPIE 7969, Extreme Ultraviolet (EUV) Lithography II, 796938 (April 07, 2011); doi: 10.1117/12.881553.
3. Christopher N. Anderson ; Lorie Mae Baclea-An ; Paul E. Denham ; Simi A. George ; Kenneth A. Goldberg ; Michael S. Jones ; Nathan S. Smith ; Thomas I. Wallow ; Warren Montgomery ; Patrick P. Naulleau; The SEMATECH Berkeley MET: extending EUV learning down to 16nm half pitch. Proc. SPIE 7969, Extreme Ultraviolet (EUV) Lithography II, 79690R (April 05, 2011); doi:10.1117/12.881573.
4. P. Naulleau, C. N. Anderson, L. Baclea-an, P. Denham, S. George, K. A. Goldberg, G. Jones, I. Mochi, S. Rekawa, B. McClinton, R. Miyakawa, W. Montgomery, T. Wallow "Using synchrotron light to accelerate EUV resist and mask materials learning," Proc. SPIE 7985, (2011)
5. Naulleau, P. P., Anderson, C. N., Baclea an, L. M., Denham, P., George, S., Goldberg, K. A., Jones, M., McClinton, B. "Critical challenges for EUV resist materials," Proc. of SPIE 7972, (2011)
6. Pistor, T. V., Wallow, T. I., Anderson, C., Naulleau, P. "Photoresist shrinkage effects at EUV," Proc. SPIE 7969, (2011)
7. Stowers, J., Telecky, A., Keszler, D., Grenville, A., Naulleau, P., Anderson, C. "Directly patterned inorganic hardmask for EUV lithography," Proc. SPIE 7969, (2011)
8. C. Anderson, J. Daggett, and P. Naulleau, "Corner rounding in EUV photoresist: tuning through molecular weight, PAG size, and development time," Proc. of SPIE Vol. 7636 763617-1
9. P. Naulleau, C. Anderson, L. Baclea-an, D. Chan, P. Denham, S. George, K. Goldberg, B. Hoef, G. Jones, C. Koh, B. La Fontaine, B. McClinton, R. Miyakawa,W. Montgomery, S. Rekawa, T. Wallow, "The SEMATECH Berkeley MET pushing EUV development beyond 22nm half pitch," Proc. SPIE, Vol. 7636, 76361J
10. P. Naulleau, C Anderson, L.Baclea-an, P. Denham, S. George, K. Goldberg, M. Goldstein, B.Hoef, R. Hudyma, G. Jones, C. Koh, B. La Fontaine, B. McClinton, R. Miyakawa, W. Montgomery, J. Roller, T. Wallow, S. Wurm, "The SEMATECH Berkeley microfield exposure tool: learning at the 22-nm node and beyond ,," Proc. of SPIE 7271, 72710W (2009)
11. C. Anderson and P. Naulleau, "MOSAIC: a new wavefront metrology," Proc. of SPIE 7272 72720B-1
12. T Wallowa, B Pierson, H Mizuno, A Fumar-Picid, K Petrillo, C Anderson, P Naulleau, S Hansen, Y Denga, K van Ingen Schenau, C Koaye, L Oharad, S Hanb, R Watsoe,

- L Hulij, M Burkhardt, O Wood, J Mallmanni, B Kesselsi, R Routhb, K Cummings, "Correlation of EUV resist performance metrics in micro-exposure and full-field EUV projection tools," Proc. of SPIE Vol. 7273 72733T-1 (2009)
13. Christopher N. Anderson and Patrick P. Naulleau, "A high-throughput contact-hole resolution metric for photoresists: full-process sensitivity study," Proc. of SPIE 6923 69230Z
14. P. Naulleau, C. Anderson, J. Chiu, K. Dean, P. Denham, K. Goldberg, B. Hoef, S. Huh, G. Jones, B. La Fontaine, A. Ma, D. Niakoula, J. Park, T. Wallow, "Advanced extreme ultraviolet resist testing using the SEMATECH Berkeley 0.3-NA microfield exposure tool," Proc. of SPIE 6921 69213N
15. E. Hassanein, C. Higgins, P. Naulleau, R. Matyi, G. Gallatin, G. Denbeaux, A. Antohe, J. Thackeray, K. Spear, C. Szmanda, C. Anderson, D. Niakoula, M. Malloy, A. Khurshid, C. Montgomery, E. C. Piscani, A. Rudack, J. Byers, A. Ma, K. Dean and R. Brainard, "Film Quantum Yields of EUV & Ultra-High PAG Photoresists," Proc. of SPIE Vol. 6921 69211-1
16. F. Salmassi, C. Anderson, E. Gullikson, and P. Naulleau, "Spin-on glass smoothing of diamond turned optics for use in the extreme ultraviolet regime," SPIE 6883 68830F
17. P. Naulleau, C. Anderson, S. Horne, "Extreme ultraviolet interference lithography with incoherent light," Proc. SPIE Vol 6517 65172T
18. Patrick P. Naulleau, Christopher N. Anderson, Bruno La Fontaine, Ryoung-han Kim, Tom Wallow , "Lithographic metrics for the determination of intrinsic resolution limits in EUV resists , " Proc. of SPIE Vol. 6517 65172N
19. Patrick P. Naulleau, Christopher N. Anderson, Kim Dean, Paul Denham, Kenneth A. Goldberg, Brian Hoef, Bruno La Fontaine, and Tom Wallow , "Recent results from the Berkeley 0.3-NA EUV microfield exposure tool," Proc. of SPIE Vol. 6517 65170V
20. T. Wallow, R. Kim, B. La Fontaine, P. Naulleau, C. Anderson, R. Sandberg, , "Progress in EUV Photoresist Technology," Proc SPIE 6533, 653317 (2007)